

10/289739

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## TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

14

Application Number

6,983,680

~~Filing~~ <sup>Issue</sup> Date

January 10, 2006

First Named Inventor

Art Unit

Examiner Name

Attorney Docket Number

RTOR-11CIP2

### ENCLOSURES (Check all that apply)

☐

Fee Transmittal Form

☒

Fee Attached

☐

Amendment/Reply

☐

After Final

☐

Affidavits/declaration(s)

☐

Extension of Time Request

☐

Express Abandonment Request

☐

Information Disclosure Statement

☐

Certified Copy of Priority Document(s)

☐

Reply to Missing Parts/  
Incomplete Application

☐

Reply to Missing Parts  
under 37 CFR 1.52 or 1.53

☐

Drawing(s)

☐

Licensing-related Papers

☐

Petition

☐

Petition to Convert to a  
Provisional Application

☐

Power of Attorney, Revocation  
Change of Correspondence Address

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Terminal Disclaimer

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Request for Refund

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CD, Number of CD(s) \_\_\_\_\_

☐ Landscape Table on CD

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After Allowance Communication to TC

☐

Appeal Communication to Board  
of Appeals and Interferences

☐

Appeal Communication to TC  
(Appeal Notice, Brief, Reply Brief)

☐

Proprietary Information

☐

Status Letter

☒

Other Enclosure(s) (please identify  
below):

Request for Certificate of correction  
Post Card

Remarks

Attached is a check for 100.00 for payment of the fee for a certificate of correction.

**Certificate**

**FEB 08 2006**

**of Correction**

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name

BROWN & MICHAELS, PC

Signature

*Meghan Van Leeuwen*

Printed name

Meghan A. Van Leeuwen

Date

1/30/06

Reg. No.

45,612

### CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

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*Justin Wood*

Typed or printed name

Justin Wood

Date

1/30/06

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**FEB 8 2006**



Patent No. 6,983,680

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent Number: 6,983,680  
Issued: January 10, 2006  
Name of Patentee: Gleasman et al.  
Title of Invention: LONG-PISTON HYDRAULIC MACHINES

Commissioner of Patents and Trademarks  
Washington, DC 20231  
Attn: Certificate of Correction Branch

**REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT  
(37 CFR 1.323)**

1. Attached in duplicate is Form PTO/SB/44 with at least one copy being suitable for printing.
2. Attached are copies of the following:
  - Copy of last office action response dated May 24, 2005
  - Copy of the Columns 15 and 16 of issued patent 6,983,680
3. All of the errors in the patent are of a minor, typographical nature.
4. The exact page and line numbers where errors occur in the application file are:
  - Claim 1 (col. 15, line 4): "is being", should read "being"
  - Claim 3 (col. 15, line 27): "pistion" should read "piston"
  - Claim 4 (col. 15, line 39): "miniffial" should read "minimal"
5. Regarding the errors introduced by the patent office in claims 1 and 4, the corrected wording is found in the listing of the claims on pages 2 and 3 of the office action response dated May 24, 2005.
6. Regarding claim 3, "piston" is used throughout the patent and claims. Pistion is merely a typographical error.
7. Attached is the fee required under 37 C.F.R. 1.20(a).

02/06/2006 JBALINAN 00000002 6983680

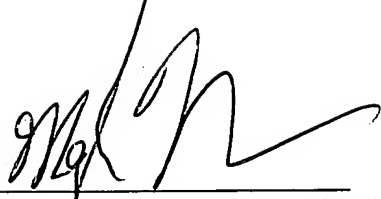
01 FC:1811

100.00 DP

FEB 8 2006

8. Please send the Certificate to:

Meghan Van Leeuwen  
Brown & Michaels, P.C.  
400 M&T Bank Building  
118 North Tioga Street  
Ithaca, New York 14850-4343

By:   
Meghan Van Leeuwen, Reg. No. 45,612  
Agent of Record  
Date: 1/30/06

FEB 8 2006

**UNITED STATES PATENT AND TRADEMARK OFFICE**  
**CERTIFICATE OF CORRECTION**

**PATENT NO. : 6,983,680**

**DATED: January 10, 2006**

**INVENTOR: Gleasman et al.**

**It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:**

**Column 15, line 4: replace "is being" with "being"**

**Column 15, line 27: replace "pistion" with "piston"**

**Column 15, line 39: replace "miniffial" with "minimal"**

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**MAILING ADDRESS OF SENDER:**

**PATENT NO. 6,983,680**

Brown & Michaels  
400 M&T Bank Building  
118 North Tioga Street  
Ithaca, New York 14850-4343

(PTO FORM PTO/SB/44)

**FEB 8 2006**

**UNITED STATES PATENT AND TRADEMARK OFFICE**

**CERTIFICATE OF CORRECTION**

**PATENT NO. : 6,983,680**

**DATED: January 10, 2006**

**INVENTOR: Gleasman et al.**

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 15, line 4: replace "is being" with "being"

Column 15, line 27: replace "pistion" with "piston"

Column 15, line 39: replace "miniffial" with "minimal"

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**MAILING ADDRESS OF SENDER:**

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118 North Tioga Street  
Ithaca, New York 14850-4343

(PTO FORM PTO/SB/44)

FEB 8 2006

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surface of the axially cylindrical body of each respective piston during the entire stroke of each said piston, the only source of pressurized fluid received by said continuous lubricating passageway is being a minimal flow of said fluid between each said respective cylindrical wall of each said cylinder and said axial cylindrical body of each respective piston; and said closed continuous lubricating passageway being formed entirely within said cylinder block, transecting each said cylinder and being centered circumferentially at substantially the same radial distance as said cylinders are centered about the rotational axis of the drive element.

2. The hydraulic machine of claim 1 further comprising a sealing member located in proximity to said open head portion of each said cylinder for substantially eliminating blow-by between each said piston and said open head portion of each respective cylinder.

3. The hydraulic machine of claim 1 further comprising a clearance between said respective body portions of said pistons and said respective cylinders, the dimensions of said clearance being selected to assure said minimal flow of fluid between each said respective cylindrical wall of each said cylinder and said axial cylindrical body of each respective piston is sufficient to cause movement of lubricating fluid in said closed continuous lubricating passageway upon the occurrence of at least one of (a) piston motion, and (b) changing fluid pressures at said valve end of each respective cylinder.

4. The hydraulic machine of claim 1 in combination with a second hydraulic machine according to claim 1, said hydraulic machines being connected to each other in a conventional closed loop of circulating hydraulic fluid wherein high-pressure fluid exiting from the first said hydraulic machine is directly delivered to the second said hydraulic machine, while low-pressure fluid exiting from the second said hydraulic machine is directly delivered to the input of the first said hydraulic machine, and wherein said minimal flow of fluid between each said piston and said valve end of each respective cylinder of both said hydraulic machines to and from said closed continuous lubricating passageway is immediately returned to said closed loop of circulating hydraulic fluid without requiring the use of a charge pump.

5. The hydraulic machine of claim 1 further comprising a swash-plate with a flat face, said swash-plate having an inclination relative to said rotational axis of the drive element, and wherein said head end of each piston is maintained in effective sliding contact with said flat face of said swash-plate during all relative rotary motions between said pistons and said swash-plate, said stroke of said pistons being determined in accordance with the inclination of said swash-plate, and said body portion of each piston has an elongated axial cylindrical length sufficient to be supported within said respective cylinder to assure minimal lateral displacement of said head end of said piston when in relative sliding contact with said flat face at all times during said stroke.

6. The hydraulic machine of claim 5 wherein said cylinder block is fixed in a housing, said swash-plate rotates with said drive element and includes a rotor that rotates and nutates, and said flat face is located on said rotor.

7. The hydraulic machine of claim 5 wherein said cylinder block is fixed in a housing and said swash-plate has a split design comprising a rotor that rotates and nutates and a wobbler that only nutates; and said flat face is located on said wobbler.

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8. The hydraulic machine of claim 7 wherein the inclination of said swash-plate is variable and the stroke of said pistons varies up to said predetermined maximum in accordance with said inclination.

9. The hydraulic machine of claim 5 wherein each piston has a spherical head end connected to said body portion by a narrowed neck portion, and said machine further comprises:

a respective sliding shoe pivotally affixed to said spherical head end of each said respective piston and maintained in effective sliding contact with said flat face of said swash-plate during all relative rotary motions between said pistons and said flat face; and

a hold-down assembly for biasing said sliding shoes toward said flat face of said swash-plate.

10. The hydraulic machine of claim 9 wherein said hold-down assembly comprises:

a hold-down element having a plurality of respective openings, the boundary of each said respective opening in said hold-down plate being located in proximity to said narrowed neck portion of each respective piston; and

a respective washer fitted about said narrowed neck portion of each piston between said hold-down plate and each respective sliding shoe, each said respective washer having an extension aligned cylindrically for circumferentially contacting each said respective sliding shoe;

said washers being in sliding contact with said hold-down plate for movement relative thereto in response to the changing relative positions of said sliding shoes when said flat face of said rotor is inclined relative to said rotational axis of the drive element.

11. The hydraulic machine of claim 10 wherein the boundary of each said respective opening in said hold-down plate is designed to be in contact with more than one-half of the outer circumference of each said respective washer at all times during said relative movements.

12. The hydraulic machine of claim 10 wherein said machine further comprises a minimal spring bias sufficient to maintain said effective sliding contact between each said respective shoe and said flat face of said swash-plate in the absence of hydraulic pressure at said valve end of each respective cylinder.

13. The hydraulic machine of claim 12 wherein said minimal spring bias is provided by a coil spring positioned circumferentially about the rotational axis of said drive element at less than said first radial distance for biasing said hold-down plate against said washers.

14. The hydraulic machine of claim 12 wherein said minimal spring bias is provided by a plurality of springs, each said spring being positioned respectively between said hold-down plate and one of said respective washers.

15. The hydraulic machine of claim 9 wherein said hold-down assembly comprises only:

a minimal spring bias sufficient to maintain said effective sliding contact between each said shoe and said flat face of said swash-plate in the absence of hydraulic pressure at said valve end of each respective cylinder, and said minimal spring bias is provided by a plurality of springs, each said spring being positioned respectively between said body portion of each respective piston and said valve end of each respective cylinder.

\* \* \* \* \*

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**TRANSMITTAL  
FORM**

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Total Number of Pages in This Submission

8

Application Number

10/789,739

Filing Date

February 27, 2004

First Named Inventor

Gleasant et al.

Art Unit

3748

Examiner Name

Koczo, Michael

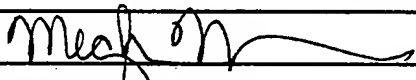
Attorney Docket Number

RTOR-11CIP2

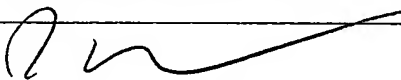
**ENCLOSURES (Check all that apply)**

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<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input checked="" type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	<input type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Request for Refund	Post Card
<input type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> CD, Number of CD(s) _____	
	<input type="checkbox"/> Landscape Table on CD	
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> Remarks	
<input type="checkbox"/> Reply to Missing Parts/Incomplete Application		
<input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53		

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm Name	BROWN & MICHAELS, PC		
Signature			
Printed name	Meghan A. Van Leeuwen		
Date	5/24/05	Reg. No.	45,612

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Signature			
Typed or printed name	Justin Wood	Date	5/24/05

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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FEB 8 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

May 24, 2005

Serial No. 10/789,739  
Applicant: Gleasman et al.  
Filed: February 27, 2004  
Title: LONG-PISTON HYDRAULIC MACHINES

Art Unit: 3748  
Examiner: Koczo, Michael  
Confirmation Number: 8413

Attorney Docket No.: RTOR-11CIP2

HONORABLE COMMISSIONER OF PATENTS  
Alexandria, VA 22313-1450

**AMENDMENT  
AND RESPONSE TO OFFICE ACTION**

In response to the Office Action dated April 28, 2005, please amend the above-identified application as follows:

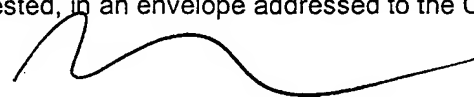
**Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this paper.

**Remarks/Arguments** begin on page 7 of this paper.

**CERTIFICATE OF MAILING**

**Certified Mail No.: 7004 0750 0003 0307 2738 Date: May 24, 2005**

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Justin Wood

FEB 8 2006



#### Amendments of the Claims:

A detailed listing of all claims in the application is presented below. This listing of claims will replace all prior versions, and listings, of claims in the application. All claims being currently amended are submitted with markings to indicate the changes that have been made relative to immediate prior version of the claims. The changes in any amended claim are being shown by strikethrough (for deleted matter) or underlined (for added matter).

1. (Previously presented): In a hydraulic machine having a plurality of pistons reciprocally mounted in respective cylinders formed in a cylinder block and positioned circumferentially at a first radial distance about the rotational axis of a drive element, each said piston having a an axially cylindrical body portion and a head end and each respective cylinder having a valve end and an open head portion beyond which said head end of each said piston extends at all times, and said pistons also having a stroke varying up to a predetermined maximum for receiving and delivering pressurized fluid, the improvement comprising:

- a respective lubricating channel formed in the cylindrical wall of each said cylinder in said cylinder block for retaining said pressurized fluid;
- all of said lubricating channels being interconnected to form a continuous lubricating passageway in said cylinder block;
- said pressurized fluid being retained in said continuous lubricating passageway by the substantial closure of each said respective lubricating channel by the outer surface of the axially cylindrical body of each respective piston during the entire stroke of each said piston, the only source of pressurized fluid received by said continuous lubricating passageway is being a minimal flow of said fluid between each said respective cylindrical wall of each said cylinder and said axial cylindrical body of each respective piston; and
- said closed continuous lubricating passageway being formed entirely within said cylinder block, transecting each said cylinder and being centered

circumferentially at substantially the same radial distance as said cylinders are centered about the rotational axis of the drive element.

2. (Cancelled)

3. (Original): The hydraulic machine of claim 1 further comprising a sealing member located in proximity to said open head portion of each said cylinder for substantially eliminating blow-by between each said piston and said open head portion of each respective cylinder.

4. (Previously presented): The hydraulic machine of claim 1 further comprising a clearance between said respective body portions of said pistons and said respective cylinders, the dimensions of said clearance being selected to assure said minimal flow of fluid between each said respective cylindrical wall of each said cylinder and said axial cylindrical body of each respective piston is sufficient to cause movement of lubricating fluid in said closed continuous lubricating passageway upon the occurrence of at least one of (a) piston motion, and (b) changing fluid pressures at said valve end of each respective cylinder.

5. (Previously presented): The hydraulic machine of claim 1 in combination with a second hydraulic machine according to claim 1, said hydraulic machines being connected to each other in a conventional closed loop of circulating hydraulic fluid wherein high-pressure fluid exiting from the first said hydraulic machine is directly delivered to the second said hydraulic machine, while low-pressure fluid exiting from the second said hydraulic machine is directly delivered to the input of the first said hydraulic machine, and wherein said minimal flow of fluid between each said piston and said valve end of each respective cylinder of both said hydraulic machines to and from said closed continuous lubricating passageway is immediately returned to said closed loop of circulating hydraulic fluid without requiring the use of a charge pump.

6. (Original): The hydraulic machine of claim 1 further comprising a swash-plate with a flat face, said swash-plate having an inclination relative to said rotational axis of the drive element, and wherein said head end of each piston is maintained in effective sliding contact with said flat face of said swash-plate during all relative rotary motions between said pistons

and said swash-plate, said stroke of said pistons being determined in accordance with the inclination of said swash-plate, and said body portion of each piston has an elongated axial cylindrical length sufficient to be supported within said respective cylinder to assure minimal lateral displacement of said head end of said piston when in relative sliding contact with said flat face at all times during said stroke.

7. (Original): The hydraulic machine of claim 6 wherein said cylinder block is fixed in a housing, said swash-plate rotates with said drive element and includes a rotor that rotates and nutates, and said flat face is located on said rotor.
8. (Original): The hydraulic machine of claim 6 wherein said cylinder block is fixed in a housing and said swash-plate has a split design comprising a rotor that rotates and nutates and a wobbler that only nutates, and said flat face is located on said wobbler.
9. (Original): The hydraulic machine of claim 8 wherein the inclination of said swash-plate is variable and the stroke of said pistons varies up to said predetermined maximum in accordance with said inclination.
10. (Original): The hydraulic machine of claim 6 wherein each piston has a spherical head end connected to said body portion by a narrowed neck portion, and said machine further comprises:
  - a respective sliding shoe pivotally affixed to said spherical head end of each said respective piston and maintained in effective sliding contact with said flat face of said swash-plate during all relative rotary motions between said pistons and said flat face; and
  - a hold-down assembly for biasing said sliding shoes toward said flat face of said swash-plate.
11. (Original): The hydraulic machine of claim 10 wherein said hold-down assembly comprises:
  - a hold-down element having a plurality of respective openings, the boundary of each said respective opening in said hold-down plate being located in proximity to said narrowed neck portion of each respective piston; and

- a respective washer fitted about said narrowed neck portion of each piston between said hold-down plate and each respective sliding shoe, each said respective washer having an extension aligned cylindrically for circumferentially contacting each said respective sliding shoe;
  - said washers being in sliding contact with said hold-down plate for movement relative thereto in response to the changing relative positions of said sliding shoes when said flat face of said rotor is inclined relative to said rotational axis of the drive element.
12. (Original): The hydraulic machine of claim 11 wherein the boundary of each said respective opening in said hold-down plate is designed to be in contact with more than one-half of the outer circumference of each said respective washer at all times during said relative movements.
13. (Original): The hydraulic machine of claim 11 wherein said machine further comprises a minimal spring bias sufficient to maintain said effective sliding contact between each said respective shoe and said flat face of said swash-plate in the absence of hydraulic pressure at said valve end of each respective cylinder.
14. (Original): The hydraulic machine of claim 13 wherein said minimal spring bias is provided by a coil spring positioned circumferentially about the rotational axis of said drive element at less than said first radial distance for biasing said hold-down plate against said washers.
15. (Original): The hydraulic machine of claim 13 wherein said minimal spring bias is provided by a plurality of springs, each said spring being positioned respectively between said hold-down plate and one of said respective washers.
16. (Original): The hydraulic machine of claim 10 wherein said hold-down assembly comprises only:
- a minimal spring bias sufficient to maintain said effective sliding contact between each said shoe and said flat face of said swash-plate in the absence of hydraulic

pressure at said valve end of each respective cylinder, and said minimal spring bias is provided by a plurality of springs, each said spring being positioned respectively between said body portion of each respective piston and said valve end of each respective cylinder.

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

## REMARKS

The office action of April 28, 2005 has been reviewed and its contents carefully noted. Reconsideration of this case, as amended, is requested. Claims 1 and 3-16 remain in this case, claims 17-26 being cancelled by this response. The Applicant reserves the right to pursue claims 17-26 in one or more divisional applications.

The Applicant would like to point out that a supplementary Information Disclosure Statement was filed on April 18, 2005 (prior to the mailing of the present office action) and respectfully requests that the Examiner review the references in the IDS prior to issuing a notice of allowance for this case.

## Conclusion

Applicant believes the claims, as amended, are patentable over the prior art, and that this case is now in condition for allowance of all claims therein. Such action is thus respectfully requested. If the Examiner disagrees, or believes for any other reason that direct contact with Applicants' attorney would advance the prosecution of the case to finality, he is invited to telephone the undersigned at the number given below.

"Recognizing that Internet communications are not secured, I hereby authorize the PTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file."

Respectfully Submitted:

*Gleasant et al.*

By: 

Meghan Van Leeuwen, Reg. No. 45,612  
Attorney for Applicant

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Dated: 5/24/05

FEB 8 2006